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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,148	02/27/2002	Shimon Elstein	LLP-007.01 (21379-701)	3938

25181 7590 03/02/2004

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EXAMINER

LEE, SHUN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/744,148		ELSTEIN ET AL.	
	Examiner		Art Unit	
	Shun Lee		2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0501</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

National Stage Application

1. The Examiner acknowledges consideration of the International Preliminary Examination Report in International Application PCT/IL99/00381. MPEP § 1893.03(e).

Information Disclosure Statement

2. The information disclosure statement filed on 21 May 2001 does not fully comply with the requirements of 37 CFR 1.98 because: The date of publication supplied must include at least the month and year of publication, except that the year of publication (without the month) will be accepted if the applicant points out in the information disclosure statement that the year of publication is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the particular month of publication is not in issue. Since the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

Art Unit: 2878

The oath or declaration is defective because:

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claims 8, 9, 11, 12, and 43 are objected to because of the following informalities:

- (a) in claim 8, "a UV unit" on line 5 should probably be --an UV image unit--;
- (b) in claim 8, "a visible unit" on line 6 should probably be --a visible image unit--;
- (c) in claim 8, "a UV image unit" on line 7 should probably be --said UV image unit--;
- (d) in claim 8, "an image" on line 7 should probably be --said first image--;
- (e) in claim 8, "the said" on line 13 should probably be --said--;
- (f) in claim 8, "a visible image" on line 14 should probably be --a first visible image--;
- (g) in claim 8, "a visible image unit" on line 15 should probably be --said visible image unit--;
- (h) in claim 8, "an image" on line 15 should probably be --said second image--;
- (i) in claim 8, "a visible image" on line 16 should probably be --a second visible image--;

- (j) in claim 8, "the visible image" on line 17 should probably be --the first visible image--;
- (k) in claim 8, "the visible image" on line 18 should probably be --the second visible image--;
- (l) in claim 8, "the said two images" on line 19 should probably be --said first and second visible images--;
- (m) in claim 9, "in the UV unit " on line 2 should probably be deleted;
- (n) in claim 9, "in the visible unit " on line 3 should probably be deleted;
- (o) in claim 11, "the optical lens of the UV unit" on lines 2 and 3 should probably be --said first element--;
- (p) in claim 12, "unit;" on line 5 should probably be --unit.-- (*i.e.*, each claim begins with a capital letter and ends with a period; see MPEP § 608.01(m)); and
- (q) in claim 43, "produce produce" on line 2 should probably be --produce--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 7-34, 37, 39, 41, 43, 45, 47, 49, 51, 52, 58, and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "strongly lit" in claims 7 and 8 is a relative term which renders the claim indefinite. The term "strongly lit" is not defined by the claim, the specification does not

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what values and distribution of intensities (as a function of both wavelengths and spatial coordinates) distinguishes a "strongly lit" environment.

Regarding claims 18 and 20, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

The term "long" in claim 52 is a relative term which renders the claim indefinite. The term "long" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what distinguishes a "long" time integration from an arbitrarily selected integration time.

Claim 59 recites the limitation "the area" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: passive optical means and UV image intensifier to other elements.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, 5-12, 14-18, 20, 22, 35, 38-43, 46, 47, 52, and 54-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Dirscherl *et al.* (US 5,001,348).

In regard to claims **8, 39, 41, 43, and 47**, Dirscherl *et al.* disclose (Figs. 9-12) an apparatus for multi-spectral imaging (*i.e.*, UV images due to transient UV emitting objects or phenomena such as a rocket and a rocket combustion plume; column 10, line 47 to column 11, line 66) in strongly lit environments (*i.e.*, day applications; column 6, lines 50-52) comprising:

(a) image acquiring means (14), for acquiring an image of a field of view, the image spanning at least the visible spectrum and the SBUV spectrum (*i.e.*, solar blind UV; column 2, lines 17-26 and 41-49), and for simultaneously providing a first image of the field of view into a UV unit (*e.g.*, UV in 15, 16), and a second image of the field of view into a visible unit (*e.g.*, VIS in 15, 16);

(b) a UV image unit (15, 16) receiving an image of the field of view from said means for image acquiring, said UV unit comprising:

(a) solar blind ultraviolet optical filter (*i.e.*, selective filter layer; column 11, lines 50-52) for transmitting optical radiation in the UV solar blind range of the

- spectrum (*i.e.*, solar blind UV; column 2, lines 17-26 and 41-49), and absorbing optical radiation in all other spectral regions (column 6, lines 44-50);
- (b) UV image display means (15, 16) for receiving the optical radiation in the solar blind range passed through said solar blind ultraviolet optical filter, and displaying a visible image of the solar blind UV image of the field of view;
- (c) a visible image unit (15, 16) receiving an image of the field of view from the image acquiring means, and displaying a visible image of the field of view; and
- (d) combining means for receiving the visible image of the solar blind UV image of the field of view from the UV image display means and the visible image of the field of view from the visible unit, and combining said two images into a combined visual image (I, II, III of 13 in Fig. 12; column 11, lines 7-17).

In regard to claims **1, 7, 38, 40, 42, and 46**, the method steps are implicit for the apparatus of Dirscherl *et al.* since the structure is the same as the applicant's apparatus of claims 8, 39, 41, 43, and 47 above.

In regard to claims **35 and 54-56**, Dirscherl *et al.* is applied as in claims 1, 7, 38, 40, 42, and 46 above. Dirscherl *et al.* also disclose (column 10, line 47 to column 11, line 66) that the second unit is suitable of visually displaying images in the IR spectral region.

In regard to claim **2** which is dependent on claim 1, Dirscherl *et al.* also disclose (column 11, lines 1-17) that the combining of the images is carried out by optical viewing means allowing a viewer to visualize the combined image.

In regard to claim **3** (which is dependent on claim 1) and claim **22** (which is dependent on claim 8), Dirscherl *et al.* also disclose (column 11, lines 1-17) transferring the combined image into electronic recording and/or displaying means for recording and/or displaying the combined image.

In regard to claim **5** which is dependent on claim 1, Dirscherl *et al.* also disclose (column 11, lines 1-17) that the imaging of the field of view is carried out separately by each one of the two imaging units.

In regard to claim **6** which is dependent on claim 1, Dirscherl *et al.* also disclose (column 11, lines 38-66) first acquiring an image spanning at least the visible and solar blind UV spectra of the field of view, and then separating the spectrum of the acquired image, wherein the UV spectrum of the acquired image in the SBUV spectral range is transferred into the UV imaging unit, and the acquired image in the visible spectral range is transferred into the visible unit.

In regard to claims **9** and **10** which are dependent on claim 8, Dirscherl *et al.* also disclose (column 11, lines 46-66) that the image acquiring means comprises two image acquiring elements, a first element (e.g., optical lens) in the UV unit providing the first image of the field of view into the UV unit and a second element (e.g., optical lens) in the visible unit providing a second image of the field of view into the visible unit.

In regard to claim **11** which is dependent on claim 10, Dirscherl *et al.* also disclose (column 11, lines 46-66) that the solar blind ultraviolet optical filter is positioned before, after, or incorporated within the first element.

In regard to claim **12** which is dependent on claim 8, Dirscherl *et al.* also disclose (Figs. 9-12) that the image acquiring means (14) comprises a beamsplitter receiving optical beams from the field of view, and splitting the said received optical beams so that the beams spanning at least the visible spectrum are directed towards the visible unit (e.g., VIS in 15, 16), and the beams spanning at least the SBUV spectrum are directed towards the UV unit (e.g., UV in 15, 16).

In regard to claim **14** which is dependent on claim 8, Dirscherl *et al.* also disclose (Figs. 1 and 7) that the UV unit further comprising a first lens (1) receiving the radiation in the solar blind spectral range passing through the solar blind ultraviolet optical filter, and producing a solar blind UV image of the field of view (column 6, lines 44-59).

In regard to claim **15** which is dependent on claim 10, Dirscherl *et al.* also disclose (Figs. 1 and 7) that the UV image display means further comprises a UV image sensor (5) located at the image plane of the first lens (1), said UV image sensor (5) creates a visible image of the solar blind UV image of the field of view (column 5, line 60 to column 6, line 10).

In regard to claim **16** which is dependent on claim 15, Dirscherl *et al.* also disclose (Figs. 1 and 7) that the UV image sensor (5) is a fluorescent screen (column 5, line 60 to column 6, line 10).

In regard to claim **17** which is dependent on claim 15, Dirscherl *et al.* also disclose (Figs. 1 and 7) that the UV image sensor (5) is a UV solar blind image intensifier (column 6, lines 44-59).

In regard to claim **18** which is dependent on claim 15, Dirscherl *et al.* also disclose (Figs. 1 and 7) that the UV image sensor (5) is selected from among CCD, BCCD, EBCCD, ICCD, MCP-PMT having multianode, MCP-PMT having position sensitive anode output, for producing first electronic signals describing the said UV image.

In regard to claim **20** which is dependent on claim 8, Dirscherl *et al.* also disclose (column 11, lines 1-17) that the visible image unit comprises an image sensor selected from among the CCD, CMOS, CID, receiving the visible image, and producing second electronic signals describing said image.

In regard to claim **52** which is dependent on claim 18, Dirscherl *et al.* also disclose (column 7, line 12 to column 8, line 25) that the first electronic signals are processed by long time integration or multiple frame integration.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 4, 21, 23, 28-34, 36, 37, 48-51, 53, 57, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dirscherl *et al.* (US 5,001,348) in view of Applicant's Admitted Prior Art.

In regard to claim **4** (which is dependent on claim 3) and claim **23** (which is dependent on claim 22), while Dirscherl *et al.* also disclose (column 11, lines 1-66) that the electronic recording and/or displaying means is a video monitor, the apparatus of Dirscherl *et al.* lacks that the electronic recording and/or displaying means is a videotape. However, videotapes are well known in the art. For example, applicant admits (last paragraph on pg. 34 and third paragraph on pg. 39) as Prior Art that standard video equipment such as videotapes are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known videotapes in the apparatus of Dirscherl *et al.*, in order to obtain a record of the combined visual image.

In regard to claim **21** which is dependent on claim 8, the apparatus of Dirscherl *et al.* lacks that the combined visual image is obtained by arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying, combining said first and second electronic signals. However, a combined visual image obtained by arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying is well known in the art. For example, applicant admits (last two paragraphs on pg. 23) as Prior Art that a

combined visual image obtained by arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying is well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known means of arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying in the apparatus of Dirscherl *et al.*, in order to obtain a combined visual image.

In regard to claims **28** and **29** which are dependent on claim 21, Dirscherl *et al.* also disclose (column 5, lines 20-27) a digital processing unit for processing electronic signals describing the UV image, the visible image or the combined image, for improving the contrast between the image of the UV emittance and the image of the visible view in the combined visual image, or for the elimination of noise, the identification of UV emitters in the field of view, or the capture of transient UV events in the field of view.

In regard to claim **30** which is dependent on claim 28, the apparatus of Dirscherl *et al.* lacks that the processing unit is an analog processing unit. However, analog processing units for image processing are well known in the art. For example, applicant admits (last two paragraphs on pg. 23) as Prior Art that analog processing units for image processing are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known means of image processing (e.g., analog processing units) in the apparatus of Dirscherl *et al.*, in order to process a combined visual image.

In regard to claim **31-34** which is dependent on claim 28, the apparatus of Dirscherl *et al.* lacks means for providing an alert or means for initiating action (e.g.,

initiation of fire extinguisher or documentation of UV emitting events) as to the detection of SBUV emittance which is above a predefined threshold level. However, means for providing an alert or initiating action are well known in the art. For example, applicant admits (last paragraph on pg. 28) as Prior Art that means for providing an alert or initiating action are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known means providing an alert or initiating action in the apparatus of Dirscherl *et al.*, in order to indicate or initiate corrective measures.

In regard to claim **36** (which is dependent on claim 1), claim **37** (which is dependent on claim 8), and claim **53** (which is dependent on claim 35), while Dirscherl *et al.* also disclose (column 10, line 47 to column 11, line 66) that the apparatus is for multi-spectral imaging, the apparatus of Dirscherl *et al.* lacks an explicit description that it is used for imaging UV emittance caused by electrical discharge. However, UV emitting phenomena such as caused by electrical discharges are well known in the art. For example, applicant admits (last paragraph on pg. 4) as Prior Art that it is well known in the art to obtain images of electrical discharges for the early detection of electrical leakages. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to use the apparatus of Dirscherl *et al.* for multi-spectral imaging of electrical discharges, in order to detect electrical leakages.

In regard to claims **48** and **50** (which are dependent on claim 1), claims **49**, **51**, and **58** (which are dependent on claim 8) and claim **57** (which is dependent on claim 35), while Dirscherl *et al.* also disclose (column 10, line 47 to column 11, line 66) that

the apparatus is for multi-spectral imaging, the apparatus of Dirscherl *et al.* lacks an explicit description that it is used for imaging of the reflections from objects (e.g., finger prints or fluid stains) illuminated by UV light sources. However, imaging of the reflections from objects (e.g., finger prints or fluid stains) illuminated by UV light sources is well known in the art. For example, applicant admits (first paragraph on pg. 6) as Prior Art that it is well known in the art to obtain images of the reflections from objects (e.g., finger prints or fluid stains which are invisible to the naked eye) illuminated by UV light sources. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to use the apparatus of Dirscherl *et al.* for multi-spectral imaging of UV illuminated objects, in order to detect objects (e.g., finger prints or fluid stains) which are invisible to the naked eye.

In addition, applicant is advised that should claim 49 be found allowable, claim 58 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

13. Claims 13, 19, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dirscherl *et al.* (US 5,001,348) in view of Filopovich (US 5,079,416).

In regard to claim **13** which is dependent on claim 12, while Dirscherl *et al.* also disclose (column 11, lines 1-66) the use of well known optical elements such as a beamsplitter, the apparatus of Dirscherl *et al.* lacks an explicit description that the

beamsplitter is a dichroic beamsplitter. However, optical elements such as beam combiners or splitters (e.g., dichroic beamsplitters) are well known in the art. For example, Filopovich teaches (column 5, lines 3-12) that dichroic beamsplitters combine or split beams. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a well known optical element such as a dichroic beamsplitter in the apparatus of Dirscherl *et al.*, in order to combine or split beams using well known optical principles so as to obtain a combined visual image.

In regard to claim **19** which is dependent on claim 8, while Dirscherl *et al.* also disclose (column 11, lines 1-66) the use of well known optical elements such as a beamsplitter, the apparatus of Dirscherl *et al.* lacks an explicit description that the combination of the visible image of the solar blind UV range of the field of view and the image produced by the visible unit is carried out by a beamsplitter simultaneously viewing said images, as provided by the UV and the visible units respectively. However, optical elements such as beam combiners or splitters (e.g., dichroic beamsplitters) are well known in the art. For example, Filopovich teaches (column 5, lines 3-12) that dichroic beamsplitters combine or split beams. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a well known optical element such as a dichroic beamsplitter in the apparatus of Dirscherl *et al.*, in order to combine or split beams using well known optical principles so as to obtain a combined visual image.

In regard to claim **24** which is dependent on claim 8 in so far as understood, Dirscherl *et al.* also disclose (column 6, lines 44-59) an UV image intensifier. While

Dirscherl *et al.* further disclose (column 11, lines 1-66) the use of well known optical elements such as a beamsplitter, the apparatus of Dirscherl *et al.* lacks an explicit description of passive optical means for allowing an operator of the apparatus to view the combined visual image. However, optical elements such as beam combiners or splitters (e.g., dichroic beamsplitters) are well known in the art. For example, Filopovich teaches (column 5, lines 3-12) that dichroic beamsplitters combine or split beams. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a well known optical element such as a dichroic beamsplitter in the apparatus of Dirscherl *et al.*, in order to combine or split beams using well known optical principles so as to obtain a combined visual image.

14. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dirscherl *et al.* (US 5,001,348) in view of Filopovich (US 5,079,416) as applied to claim 24 above, and further in view of Baril *et al.* (US 5,535,053).

In regard to claims **25** and **26** which are dependent on claim 24, while Dirscherl *et al.* also disclose (column 10, lines 43-46) that the apparatus can be adapted as a vision aid, the modified apparatus of Dirscherl *et al.* lacks that the modified apparatus in a monocular or binocular form. However, monocular or binocular vision aides are well known in the art. For example, Baril *et al.* teach (column 1, lines 16-65) that monocular or binocular vision aides are well known in the art and provide advantages for different applications. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to form the modified apparatus

of Dirscherl *et al.* either as a monocular or binocular goggle, in order to obtain a wearable monocular or binocular vision aide adapted for a desired application.

15. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dirscherl *et al.* (US 5,001,348) in view of Palmer (US 5,687,034).

In regard to claim **27** which is dependent on claim 8, the apparatus of Dirscherl *et al.* lacks a stills camera means for recording the combined visual image on a stills camera film. However, photographing with vision aides are well known in the art. For example, Palmer teaches (column 1, lines 13-63) that taking photographs with vision aides are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a camera means in the apparatus of Dirscherl *et al.*, in order to obtain photographs.

16. Claims 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dirscherl *et al.* (US 5,001,348) in view of Hartemann *et al.* (US 4,835,391).

In regard to claim **44** (which is dependent on claim 1) and claim **45** (which is dependent on claim 8), while Dirscherl *et al.* also disclose (column 10, line 47 to column 11, line 66) that the apparatus is for multi-spectral imaging, the apparatus of Dirscherl *et al.* lacks an explicit description that it is used for imaging Cherenkov radiation. However, UV emitting phenomena such as Cherenkov radiation are well known in the art. For example, Hartemann *et al.* teach (column 1, lines 11-59) it is well known in the art to obtain images of Cherenkov radiation for the study of beam dynamics. Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention to use the apparatus of Dirscherl *et al.* for multi-spectral imaging of Cherenkov radiation, in order to study beam dynamics.

17. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dirscherl *et al.* (US 5,001,348).

In regard to claim **59** which is dependent on claim 8 in so far as understood, the apparatus of Dirscherl *et al.* lacks an explicit description that the image acquiring means comprises an optical lens which acquires the beam spanning the UV image and a mirror in front of said lens, but covering only part of the area, which reflects the visible beam to the visible image capturing unit. However, Dirscherl *et al.* also disclose (column 11, lines 1-66) the use of well known optical elements such as a mirror. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to position a mirror in the apparatus of Dirscherl *et al.*, in order to split beams using well known optical principles.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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SL


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